THE SYSTEMS APPROACH TO QUARANTINE SECURITY FOR NORTHWEST TREE FRUITS: A PRACTICAL ALTERNATIVE

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The systems approach for agricultural commodities involves the incorporation of production, harvesting, and packaging practices so that quarantine requirements for export are satisfied. The advantages of a systems approach over traditional quarantine treatments are that it: can be integrated into existing post-harvest commercial handling procedures; mandates high quality product; may reduce capital cost and labor requirements; does not impose delays in processing or shipment due to postharvest treatments; does not require complicated expensive equipment, such as a fumigation chamber or an irradiator; reduces health and environmental concerns.

The tree fruit industries in the Pacific Northwest have promoted the application of the system approach to their commodities, particularly cherries and apples. In regards to the codling moth, *Cydia pomonella* (L.), both of these commodities require significant field control followed by intense postharvest inspections for potentially infested and insect damaged fruits. Cherries are a poor host for the codling moth; over the past 19 years, only eight larvae in more than 7.0×10^8 cherries were detected by domestic inspectors. Furthermore, grower lots known to be infested may be ineligible to participate in the export program. The situation is similar in apples; only 71 codling moth were found in over 1.6×10^8 fruits surveyed during three years. Thus, the combination of pest control in the field and culling in the packing house has eliminated the risk of codling moth contamination for most fruits intended for export.

Systems approaches for cherries are now being used for most importing countries and is being proposed to Japan and Korea. A systems approach for apples is also being proposed to Japan and has been accepted by other countries, such as Taiwan. To strengthen the security requirements for these countries, additional data can be collected on the impact of normal processing procedures, such as cold storage and the effect of wax coatings, on reducing the survivorship of codling moth life stage.

A systems approach is a practical alternative to methyl bromide fumigations for quarantine security against the codling moth in Northwest tree fruits. Future emphasis will expand the list of participating countries and increase the application to other arthropod pests. The export market of local produce can expand without compromise to product quality.